## REMARKS

After amendment, the pending claims are 1, 13-16, and 18-32. Claims 2-12 were previously cancelled. In an effort to place the application in condition for allowance, claim 17 is now canceled. Claims 1, 16, 18, 19, 22, and 23 are amended to clarify the invention and to place the application in condition for allowance. Claims 31 and 32 are newly presented. Support for these amendments is found in the original specification and claims as filed, particularly at page 10, lines 23-30. No matter is added by these amendments.

**Applicants' Invention**

Applicants' invention is drawn to a biaxially oriented thermoplastic crystalline polymer film having at least one layer. The required layer of the film must be a fibre-containing layer which includes a thermoplastic polymer and a fiber. The thermoplastic polymers can include linear polymers including polyimides, polyamides, polyesters, polyvinylchlorides, or polyolefins. The thermoplastic polymers can be present in the layer at least 50% by weight.

The fibers must be natural, polymer, or mineral fibers and be present in the layer at about 0.5 to about 30% by weight. In some embodiments, Applicants note that cellulose, cotton, Nylon® 6.6, and wollastonite can be used as the fibers.

Additional layers may be included in the film of the present invention and include base layers, interlayers, and topcoats.

Surprisingly, Applicants have discovered that the addition of fibers to the film produces a film that has easy tearability. This easy tearability is especially noticeable if the fiber-containing layer is an interlayer or base layer. This effect is in contrast to what is known in the art about fibers. Specifically, the art has shown that when fibers are added to compositions, the strengths of the resultant materials increased.

Applicants also noted that the texture of the film and appearance was paper-like. This feature was also evident in the sound made upon tearing the film. Further, water-vapor permeability was also noted for the films of Applicants' invention.

**35 USC § 112 Second Paragraph Rejections**

The Examiner has rejected claims 1 and 13-30 under 35 USC § 112, second paragraph for the following reasons.

(i) The Examiner has asserted that the composition of the thermoplastic polymer in claim 1 is unclear.

Applicants respectfully request reconsideration and withdrawal of this rejection for the following reason.

In an effort to place the application in condition for allowance, Applicants have amended claim 1 to specify that the fibre-containing layer contains a thermoplastic polymer and fibres.

Reconsideration of this rejection is requested.

(ii) The Examiner has asserted that there is insufficient antecedent basis for the phrase "matrix polymer" in claim 16.

Applicants respectfully request reconsideration and withdrawal of this rejection for the following reason.

In an effort to place the application in condition for allowance, Applicants have amended claim 16 by deleting the term "matrix" and inserting the term "thermoplastic".

Reconsideration of this rejection is requested.

(iii) The Examiner has asserted that it is unclear if the polypropylene in claims 18 and 19 is a fiber or film.

Applicants respectfully request reconsideration and withdrawal of this rejection for the following reason.

In an effort to place the application in condition for allowance, Applicants have amended claim 18 to clarify that the thermoplastic polymer is polypropylene and amended claim 19 to clarify that the thermoplastic polymer is an isotactic propylene homopolymer.

Reconsideration of this rejection is requested.

(iv) The Examiner has asserted that there is insufficient antecedent basis for "the base layer" in claim 22.

Applicants respectfully request reconsideration and withdrawal of this rejection for the following reason.

In an effort to place the application in condition for allowance, Applicants have amended claim 22 to clarify that the polymer film is multi-layered and can contain a base layer. Support for this amendment is found in the specification at page 8, line 26 – page 9, line 2.

Reconsideration of this rejection is requested.

(v) The Examiner has asserted that there is insufficient antecedent basis for the phrase "the interlayer" in claim 23.

Applicants respectfully request reconsideration and withdrawal of this rejection for the following reason.

In an effort to place the application in condition for allowance, Applicants have amended claim 23 to clarify that the polymer film is multi-layered and can contain an interlayer. Support for this amendment is found in the specification at page 8, line 26 – page 9, line 2.

Reconsideration of this rejection is requested.

**35 USC § 102 Rejections**

(i) The Examiner has rejected claims 1 and 17-25 under 35 USC § 102(b) over Austen et al. (US Patent No. 4,341,827).

The Examiner has asserted that Austen teaches a biaxially oriented film comprising a thermoplastic polymer and strengthening materials such as short fibers.

Applicants respectfully request reconsideration and withdrawal of this rejection as against the amended claims for the following reason.

Claim 17 has been canceled, thereby mooting the outstanding rejection as applied to this claim. New Claims 31 and 32 are based upon Claim 13, which does not fall under this rejection. Therefore, Claims 31 and 32 are free of this art. Claims 1 (as amended) and 18-25 are not anticipated by Austen.

Austen teaches a thermoplastic ***crystalline*** polymer sheet produced by a specifically defined solid state hydrostastic extrusion process, which effects the final composition of the sheet or film. In seeking to overcome "conventional" processes of film-making (col. 2, line 28-col. 3, line 3), Austen uses a process which ***retains*** spherulites in the film during a stretching process. Austen's sheets are thus characterized by a structure of spherulitic crystalline aggregates compressed in a plane transverse to the plane of the film and oriented in the plane of the film. Further Austen's sheets are in the order of 0.13 to 0.76 mm in thickness (i.e., 130-760 μm) and are substantially devoid of any process-induced microvoids and microfibrils in the plane of the film. See col. 5, lines 34-63. The thermoplastic polymers must remain in the solid state when heated, having flow characteristics that allow for extrusion in the solid state, and have coefficients of friction that do not permit stick-slip extension. The thermoplastic polymer must also have a crystallinity of at least 45%. In fact, Austen states at col. 18, line 1-5 that the melt flow index (MFI) of the polypropylene that it uses is 0.4 dg/minute, corresponding to 4g/1min. Such high MFI of the polymer is necessary to permit it to withstand the solid state hydrostatic extrusion processes

Austen notes that the polymer sheet or film may contain particles of non-strengthening or non-stiffening filler materials including colorants, flame-retardants, and anti-oxidants. **Stiffening** and **strengthening** materials may also be included in the polymer film and include talc, calcium carbonate, mica, and **short fibers**. The fillers are present in the composition in an amount "as little as needed...". Austen does not define the term "short fibers". Instead, Austen's only requirement is that the fibres are "short" and that the same impart increased strength to the resultant film. The term "short" can only be defined by reference to the film dimensions. In the context of a 0.5 mm film, a fiber length of 1 to 10 mm would be considered short. However, essentially Austen provides no teachings to allow one of skill in the art to understand what the term "short fibers" refers to.

Austen's sheets are characterized by tensile strength, impact strength, thermal conductivity and reduced gas permeability. Austen is not at all related to tear propagation of film, but rather is directed to improvements in gas barrier properties by maintaining the spherulites during stretching. There is no teaching in Austen at all

which enables one of skill in the art to determine how improved initial tear, i.e., low force for initiating a tear film and controlled tear propagation can be achieved for a biaxially oriented film.

Clearly, Applicants' films are considerably different from the sheets of Austen. For example, Applicants' compositions contain no spherulites because the method of producing Applicants' composition, i.e., a conventional flat die method, which was sought to be avoided by Austen (noted above), does not produce such crystals. Secondly, and as amended, Applicants' films are of a thickness considerably less than that of Austen's films, i.e., less than 100 μm. Further, as noted above, Applicants' composition contains fibres of a length exceeding 10 μm and up to 250μm (page 5, line 26-page 6, line 2). The amount of fibre in Applicants' composition is from about 0.5 to at most 50% by weight of the total weight of the fibre-containing layer. It should further be noted that Applicants' compositions can employ polymers with MFIs of between 0.5 – 15/10 minutes, which would not be able to be employed in Austen's sheets or films.

Applicants' composition is characterized by easy tearability. Applicants' combination of a thermoplastic polymer (e.g., a polyimide, polyamide, polyester, polyvinyl chloride, and polyolefin) and a fibre which is a natural fibre, polymer fibre or mineral fibre, does not result in a stronger film, such as described by Austen. Instead, the fiber assisted in the easier tearability of the film. It is Applicants' selection of the specific fibres that produces a film with increased tearability. In view thereof, one of skill in the art would not have employed fibers that impart strength to a composition, such as those recited in Austen, to form the film or have produced a thicker film, such as that of Austen, since doing so would on result in a film that was more difficult to tear.

In view thereof, the differences in Austen's method of manufacture, incorporation of short fibers that impart strength to the compositions, and thickness of the films or sheets, Austen effectively *teaches away* from Applicants' composition and method claims. Austen does not anticipate the presently claimed invention.

Reconsideration of this rejection is requested.

(ii) The Examiner has rejected claims 1, 14, 17, and 18 under 35 USC § 102(b) over Schwarz (US Patent No. 4,438,167)

Applicants respectfully request reconsideration and withdrawal of this rejection in view of the above claim amendments and for the following reasons.

Claim 17 has been canceled, thereby mooting the outstanding rejection as applied to this claim. New Claims 31 and 32 are based upon Claim 13, which does not fall under this rejection. Therefore, Claims 31 and 32 are free of this art.

Schwarz teaches a *porous fabric*, not a film. Schwarz's fabric and its method of manufacture and uses have absolutely nothing in common with the films of the present invention. Schwarz's fabric is formed by biaxially stretching a composite fiber-film substrate and a laminate of a woven or non-woven fiber web of fibers having a residual elongation of at least 40% and a synthetic polymeric film material. The film material is fused into the fiber structure to form the sheet substrate, which is then cooled and stretched. Schwarz notes that when the substrate is cold stretched, some of the substrate separates and results in a fabric having surface openings. The surface openings are present at 100,000 perforations per square inch, have porosities from 10 to 70%, and are permeable to vapors and liquids. These porous fabrics of Schwarz can be used as filters materials, synthetic papers, or synthetic leathers.

Schwarz is not at all related to tear propagation of film, but rather is directed to porous fabrics. There is no teaching in Schwarz at all which enables one of skill in the art to determine how improved initial tear, i.e., low force for initiating a tear film and controlled tear propagation can be achieved for porous fabric, nor why such a characteristic would be at all desired for same.

In contrast to the teachings of Schwarz, Applicants disclose a film, ***not*** a fabric, laminate or composite made from a fabric. Fabrics and laminates and composites made from fabrics are totally different from films of Applicants' invention. See, e.g., the definitions of nonwoven and woven fabrics, and laminates vs. the definitions of "film" in Exhibit A, D. V. Rosato, "Rosato's Plastics Encyclopedia and Dictionary", Hanser Publ., New York, 1993, pp. 273, 294-295, and 410. Applicants' film has a layer wherein fibers are embedded in the thermoplastic polymer due to mixing. Applicants' films are ***not*** porous and have no open cell pore structure permeable to vapors and liquids.

Applicants' film is characterized by easy tearability. Applicants' combination of a thermoplastic polymer (e.g., a polyimide, polyamide, polyester, polyvinyl chloride, and polyolefin) and a fibre which is a natural fibre, polymer fibre or mineral fibre, does not result in a porous fabric, such as described by Schwartz. It Applicants' film is characterized by increased tearability. One of skill in the art would not have employed a fabric or a porous laminate used as a synthetic filter or leather to form a tearable film.

In view thereof, the differences in Schwarz's method of manufacture, and production of a porous fabric, Schwarz effectively *teaches away* from Applicants' composition and method claims. Schwarz does not anticipate the presently claimed invention.

Reconsideration of this rejection is requested.

(iii) The Examiner has rejected claims 1, 13, 15-17, 22, and 24 under 35 USC § 102(a) over Itakura et al. (European Patent No. 0 940 437).

Applicants respectfully request reconsideration and withdrawal of this rejection in view of the above claim amendments and for the following reasons.

Claim 17 has been canceled, thereby mooting the outstanding rejection as applied to this claim. New Claim 31 is based upon Claim 14, which does not fall under this rejection. Therefore, Claim 31 is free of this art.

Itakura is not related to films at all. Itakura is completely unrelated art to Applicants' invention in that it teaches a styrene-based resin composition having good strength, moldability, and heat resistance for use in thin-walled and light-weight molded articles. The compositions of Itakura are prepared by combining a fibrous material with a ***styrene-based resin***. The fibrous material can include whiskers, amorphous fibers, and crystalline fibers. The whiskers impart elevated strength and elasticity to the composition. The fibrous materials are present in the composition at 0.001 to 4 parts by weight and the styrene-based resin is present at 100 parts by weight of the composition.

Itakura does not teach compositions that contain polyimides, polyamides, polyesters, polyvinylchlorides, or polyolefins as the thermoplastic resins

as required by the amended claims. Instead, Itakura must use the styrene-based resins, which cannot be removed from the compositions.

Itakura is not at all related to film or to tear propagation of film, but rather is directed to moldable resins. There is no reason one of skill in the art would look to a reference on moldable resins to determine how to produce a paper-type film with improved initial tear, i.e., low force for initiating a tear film and controlled tear propagation.

In view thereof, Itakura does not teach anything relevant to Applicants' invention.

Reconsideration of this rejection is requested.

**35 USC § 103 Rejections**

(i) The Examiner has rejected claims 28-30 under 35 USC § 103(a) over Austen.

Applicants respectfully request reconsideration and withdrawal of this rejection for the following reason.

Austen is discussed in detail above.

Austen does not teach or suggest the films of Applicants' invention, for the reasons stated above. Thus, Austen cannot teach or suggest performing ***any*** methods with the films of Applicants' invention. Austen does not teach or suggest processes of labeling or packaging products with the films of Applicants' invention. Neither can Austen teach or suggest processes of laminating products with films of Applicants' invention.

Reconsideration of this rejection is requested.

(ii) The Examiner has rejected claims 27-30 under 35 USC § 103(a) over Itakura.

Applicants respectfully request reconsideration and withdrawal of this rejection for the following reason.

Itakura is discussed in detail above.

Since Itakura does not teach or suggest the films of Applicants' invention, it cannot teach or suggest the production of Applicants' films or uses of

Applicants' films. Itakura does not teach or suggest processes of labeling products, processes of laminating products, or processes for packaging products with the films of Applicants' invention.

Reconsideration of this rejection is requested.

(iii) The Examiner has rejected claims 28-30 under 35 USC § 103(a) over Schwarz.

Applicants respectfully request reconsideration and withdrawal of this rejection for the following reason.

Schwarz is discussed in detail above.

Since Schwarz does not teach or suggest the films of Applicants' invention, it cannot teach or suggest packaging products with the films of Applicants' invention. Nor can Schwarz teach or suggest processes of labeling products or processes of laminating products with films of Applicants' invention.

Reconsideration of this rejection is requested.

(iv) The Examiner has rejected claim 26 under 35 USC § 103(a) over Schwarz or Itakura or Austen and further in view of Hatke et al. (US Patent No. 6,551,653)

Applicants respectfully request reconsideration and withdrawal of this rejection for the following reason.

Schwarz, Itakura, and Austen are discussed in detail above and do not teach or suggest the films of Applicants' invention or processes of using the same.

Hatke teaches metallized polyolefin films and processes for producing the same. Specifically, the outermost layer of the unmetallized polyolefin film is a cycloolefin polymer film which has not been pretreated. The cycloolefin polymer film can include additives for improving slip and winding behavior and include fine inert particles (col. 5, lines 35-52). Other components can be added to the cycloolefin film and include stabilizers, neutralizers, lubricants, or antioxidants. The film can then be provided with a metal layer.

Hatke does not add anything to Schwarz, Itakura, or Austen to teach or suggest a polymer film including a fibre-containing layer including a polyimide, polyamide, polyester, polyvinyl chloride, or polyolefin thermoplastic polymer and a

fibre. If Hatke is improperly combined with these cited references, metallized fabrics, molded articles and thicker, spherulite-containing, strong films are provided. However, as stated above, none of these products is the equivalent of Applicants' products or methods, nor do they teach or suggest the specific thermoplastic films of Applicants' invention.

Therefore, Schwarz, Itakura, or Austen in combination with Hatke does not teach or suggest Applicants' invention.

Reconsideration of this rejection is requested.

The Director is hereby authorized to charge any deficiency in any fees due with the filing of this paper or credit any overpayment in any fees to our Deposit Account Number 08-3040.

Respectfully submitted,

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